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AN EVALUATION OF THE MPOWERMENT EVIDENCE-BASED PROGRAM IN CONGRUENCE WITH CHICAGO-SPECIFIC MOBILE APP ON REDUCING HIV TRANSMISSION AND ACQUISITION

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TRANSMISSION AND ACQUISITION

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the
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Abstract

Black Men who have sex with Men are at higher risk of contracting HIV than other populations, and thus require programs that focus on their need. Chicago, Illinois has incidence and prevalence rates 3 times higher than the national average, with a large burden of the disease falling on BMSM. Mpowerment is an evidence-based intervention that utilizes formal and informal meetings at a home base and local venues, and has found promising effects in reducing unprotected anal intercourse. Mobile applications have also shown promise in increasing adherence, and will be adapted into the Mpowerment program to create a High Impact Prevention approach at reducing HIV incidence. The original program Mpowerment and an adaptation including the App will be implemented in two Chicago communities in an effort to decrease the transmission and acquisition of HIV.

An Evaluation of the Mpowerment Evidence-Based Program in Congruence with Chicago-Specific Mobile App on reducing HIV Transmission and Acquisition

Target Population and Need

The fight against the Human Immunodeficiency Virus, also known as HIV, has made great strides in biomedical and behavioral interventions. Despite these advances, certain populations have maintained epidemic proportions of incidence and even increased incidence in recent years.¹ One of the populations disproportionately affected by HIV is Black men who have sex with men (BMSM) in various cities, including Chicago, Illinois. Chicago remains a northern epicenter of the HIV endemic with rates of incidence at 36.1 per 100,000 and rates of prevalence at 847.6 per 100,000, which are approximately three times that of national rates.²

Using the 2015 HIV/STI Surveillance Report, Chicago; focusing on the target group of BMSM aged 20-40 is easily supported. In 2014, 78.3% of all new infections in Chicago occurred in MSM and 92.1% of HIV infection in males was linked to MSM. Within MSM HIV acquisition, 47.6% (355 diagnoses) were non-Hispanic, Black individuals. As of 2013, 5,369 BMSM are living with HIV in Chicago, which are 66.3% of all male and 38.8% of all MSM HIV infections.² Black individuals between the ages of 20 and 40 made up 67.8% of new Black Male HIV infections in 2014 compared to other age groups in congruence with 90.8% of all HIV infection occurring from MSM contact.²

Although it is extremely important to stop new cases, there is recent evidence that suggests some of the most effective ways to prevent transmission and acquisition is to find already infected individuals and link them to care.¹ Current estimates suggest that up to 90% of all new cases of HIV are transmitted by an individual who naïve of their status.¹ In fact, multiple clinical studies have found that those who adhere to their medications as intended are incredibly

low infectors.¹ This leads to the necessity of finding current cases and linking them to care immediately and permanently. This a particular need in Illinois as 26.5% of those diagnosed with HIV in 2013 had an AIDS diagnosis within 12 months.³

AIDS typically occurs after a clinical latency stage that can take anywhere from 7-10 years. This means that one fourth of those diagnosed with HIV in Illinois may have been harboring the virus and infecting others for years. National rates in 2012 along the care continuum estimate that only 87% of people living with HIV/AIDs (PLWHA) are diagnosed, 81% linked to care within three months, 39% are engaged in care, 36% prescribed ART, and finally only 30% of PLWHA are virally suppressed.¹ These rates are worse for the 2012 Chicago HIV Continuum of Care where only 82% of PLWHA are diagnosed, 44% linked to care, 36% retained in care, 32% on ART, and only 27% virally suppressed.⁴ In addition to preventing HIV infection among uninfected individuals, a focus is required on finding positive-naïve folks and those who have fallen out of treatment and moving them towards becoming virally suppressed on the care continuum.

BMSM of Chicago face epidemic rates of HIV acquisition and transmission. The purpose of the proposed program and its adaption is to encourage preventative behaviors among BMSM and address the issues within the treatment cascade to decrease rates and spread of infection among BMSM. The proposed program will target BMSM regardless of state of infection per Treatment as Prevention (TaSP) and prevention protocol.

Methods

This program will utilize a Quasi-experimental non-equivalent control group design with two treatment groups. Chicago is composed of many community areas that include the three large segments: North Side, South Side, and West Side. Although each community is unique and

has different population densities and racial demographics, all three are near the center of Chicago and have high prevalence and incidence, which can be seen in Figure 1 and Figure 2 below.⁵

Figure 1. HIV Prevalence (2014)

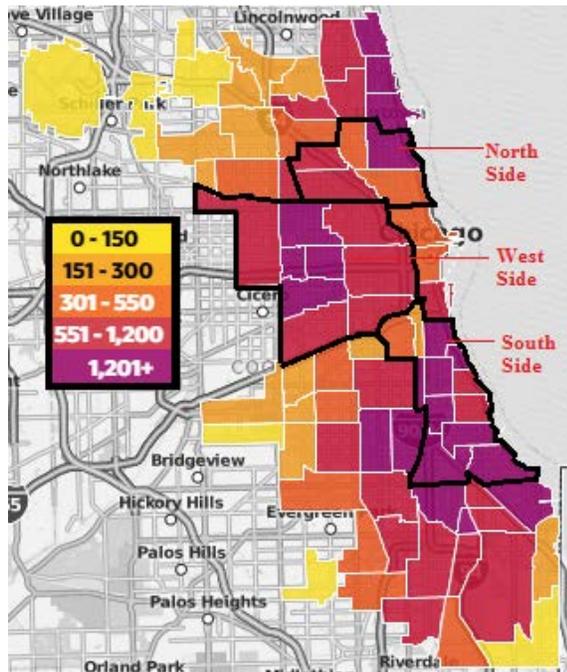
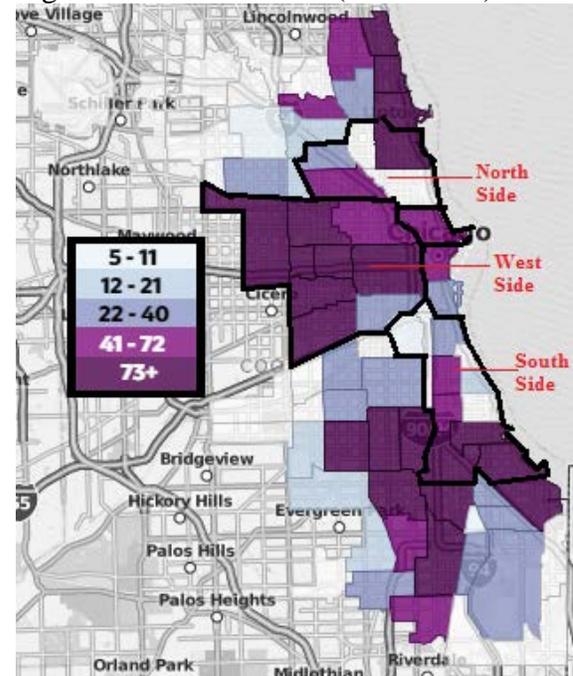


Figure 2. HIV Incidence (2012-2014)



Chicago is home to many services that relate to those vulnerable to HIV infection including, but not limited to; housing assistance, Department of Human Services (SNAP, medical benefits, etc...), substance abuse centers, needle-exchange services, mental health centers, health departments, and testing centers. The Chicago Housing Authority is located in Southside, Chicago with numerous public housing options available in other community areas. In essence, Chicago already has many services for the target population, making it unnecessary to create more services. This program will instead enhance and disseminate information about these services during through the community program and an App that will be created as part of the program. Liaisons from current services will be invited to act as collaborators with the program and join in the Community Advisory Board (CAB) for this program.

Our goal for the program is to have at least one representative from at least five potential services sit on the board and attend at least half of the meetings and/or correspond with the Program Manager (PM). Other membership goals for the CAB are to include at least five individuals living in Chicago within the target population and at least three MSM individuals living in Chicago outside of the target population. The board will also include at least one medical professional who is LGBT friendly. Although we will not require a minimum number to sit on the board, all LGBT groups and LGBT-friendly churches will be contacted and invited to the CAB. Specific individuals that would be invited and corresponded with regardless of meeting attendance would include the mayor of Chicago as well as any Disease Intervention Specialist, testing centers, and navigation sites for HIV care. A representative from the Health department as well as representatives from the current Councils and Committees dedicated to HIV services will be invited to the CAB. These include the existing Chicago Area HIV Integrated Services Council (CAHISC) and its committees: the Primary Prevention and Early Intervention Committee, the Linkage and Retention to Care Committee, the Anti-retroviral Therapy and Viral Suppression Committee, and the Membership and Community Engagement Committee. Having a representative from each committee act as a liaison will help connect the two councils while remaining feasible in time commitment from the already existing council. The PM will attend the Full Body Council meetings to disseminate information to the entire group and obtain feedback from the entire group.

The CAB will be created with a first meeting of at least half of proposed attendance with two months of the three-year grant period. This goal is feasible as the current CAHISC is currently well managed and active. The CAB will hold monthly meetings for the formative

process of the program then hold meetings every three months after the initial six months of the grant period when the program begins implementation.

The CAB will take part in early stages of program planning and continue activity throughout implementation. During the first six months, the CAB will suggest individuals within the target group to invite to participate in focus groups and key informant interviews.

Throughout the three-year grant period, the CAB will meet and will make decisions on changes that need to occur within the program.

The CAB and PM will hire the Coordinators for the behavioral intervention, Mpowerment, between month two and month four of the grant period. Mpowerment is a community level behavioral intervention that is considered “good evidence” with MSM populations and has been shown to reduce condomless sex and increase testing and safer sex self-efficacy.^{6,7} This intervention will be modified to focus on the BMSM community in Chicago. Mpowerment has also been shown to be cost-effective in younger MSM populations.⁸

In addition to the CAB, focus groups and key informant interview participants will be utilized in formative analysis. Focus groups will provide the most substantial information, but it is important to utilize key informant interviews as well so individuals who are not open about their sexual behavior can be reached. Individuals who are interviewed in both formats will be BMSM who live in Chicago and are between the ages of 20 and 40. Focus groups will take place in small community areas while key informant interviews will occur wherever the interview participant wishes, as long as it is in a public place. The PM will facilitate all interviews, which will be recorded for evaluation. Practicum students from local universities (University of Chicago and North Western) who are HIPPA certified will act as scribes during the interview and coders to prepare the transcripts for evaluation. Participants will be compensated per the

budget as well as receive free local cuisine. Focus groups will occur in all three communities twice in the first six months of the grant period. Focus groups will consist of four to six individuals. At least two key informant interviews will be conducted per community as well. Participants for both focus groups and key informant interviews will be recruited by convenience sampling at established gay-friendly bars or by suggestion of CAB members to ensure coverage of the entire community.

Interviews will cover cultural competency, barriers to HIV prevention and practices, and suggestions for advertisement of program initiatives. Participants will be asked open-ended questions about these topics. Some cultural competency questions will be related to questions that will be used to evaluate the program effectiveness. Comments regarding evaluation outcomes will be brought to the CAB and the Data Manager (DM) will finalize the evaluation survey at six months in the grant period.

Additionally, these individuals will inform and determine the needs of the target group community. Although the needs of the community will be determined after these discussions, previous studies suggest that common needs include housing, mental health services, fighting LGBT/HIV stigma, and substance abuse services. Interview participants will be also asked to provide lists of resources relevant for the needs of Black MSM and HIV prevention that will be used for the App. This information will be given to the PM and the three Coordinators hired for the Mpowerment Program (Mpowerment Coordinators). These resource locations will be contacted to ensure they are still available. The PM and Mpowerment Coordinators will summarize the resources and services for reference to be utilized in the App.

All interviews will be recorded for later transcription by a practicum student from a local university. After transcription, the PM will analyze manuscripts for common themes. Counts of

common themes will be kept and presented to the CAB to address. The CAB will reach a consensus vote on program and evaluation adaptations per results of the focus groups.

Because the Mpowerment program is a community-level program, no recruitment will occur for the program implementation. Evaluation measurements will be gathered at baseline and every six months throughout the intervention time period for a total of six survey “events”. The Mpowerment Coordinators will collect all evaluation measurements utilizing survey software on an iPad or through the application. Surveys will also be offered to individuals that utilize the App service. Survey participants will be recruited within North Side, West Side, and South Side via convenience sampling at locations frequented by black MSM. Mpowerment Coordinators will obtain permission to survey in private locations like bars and stores and ask individuals to take the survey as they are interacted with. At least nine locations (three locations per community) for each testing session will be utilized with a total of thirty survey responses obtained at each location. Surveys will be offered in App until 30 responses are obtained per survey event.

Because the proposed intervention utilizes Mpowerment as well as the novel addition of the App, three intervention conditions will be used. By using a non-equivalent control population, changes can be attributed to the program. Having two treatment populations, one with both the App and program and one with just the program, will allow changes that are due to the novel approach to be analyzed. As a community-level intervention, the reach of this program has the potential to be quite large. Goals of the program are to increase protective behaviors, adherence to medication, and testing rate as well as utilization and awareness of the program.

Primary Goal

- An increase condom use and uptake of other protective behaviors will increase by 10% in both North and South Side.

Secondary Goals

- An increase in Adherence by 5% in North Side (Mpowerment only) and 10% in South Side (Mpowerment and App).
- An increase in testing of 10% in North Side and 15% in South Side.
- Uptake of the App in South Side will be 50% of the target community.
- Awareness and effects of the program will reach at least 1,500 target group individuals (BMSM 20-40 years of age regardless of HIV status) in North Sides with Mpowerment alone. South Side will reach at least 3,000 individuals with the Mpowerment program and App.

Program Approach

In the 2015 National HIV/AIDS Strategy, the use of High Impact Prevention (HIP) has been set as the expected focus of all further HIV prevention.¹ HIP focuses on structural change, treatment as prevention (TAsP), annual testing of all individuals (and more often for target groups), PreP for high risk individuals, and behavioral interventions to encourage safer behaviors that decrease infection of HIV. The evidence-based program will address TAsP via adherence, testing rates, and safer sex behaviors. The App will focus on increasing adherence and testing. Mobile Health Apps, often referred to mHealth, have become a novel strategy with promising results.^{9,10}

This program will focus first and foremost on the outcomes of increasing safer sex behaviors. These behaviors include, but are not limited to, increasing condom use, increasing use of lubrication, increase in lower-risk activities compared to high risk activities, and seropositioning. Secondary focuses will include adherence to ART and PreP medications. ART, (antiretroviral treatment), is the medication that individuals diagnosed with HIV are prescribed.

If taken daily, it has been shown to decrease transmission by reducing the viral load to low or undetectable levels.¹¹ ²In addition to safer sex practice and medication adherence, an increase in individuals that are first-time and repeat testers is a goal of the program. The CDC currently suggests that every sexually active individual get tested for HIV and other STIs annually. The CDC further suggests that MSM get tested more regularly, at three- to six-month intervals.¹³ Testing may increase by call to actions and social norm acceptance from program implementation. This will be affected by social norm acceptance and increasing self-efficacy in condom negotiation from the behavioral intervention program.

Mpowerment: the Behavioral Intervention

Mpowerment is an evidence based program that was originally created for mixed-race MSM. Many adaptations of Mpowerment have focused on populations within MSM, such as MSM, because these populations have higher HIV incidence compared to their white MSM counterparts.² Mpowerment was initially created for HIV-uninfected MSM, so one adaptation will be to ensure that the program is relevant for HIV positive individuals by ensuring that prevention of HIV is discussed in the scope of transmission as well as acquisition.

Formative planning for the Mpowerment program will occur during the first six months of the grant period. Mpowerment requires at least one paid Mpowerment Coordinator and a volunteer Core Group of about 12-20 individuals to run the program. As this program will be implemented in both South Side and North Side, a total of three coordinators will be hired. Each location will have one permanent coordinator and the third coordinator will act as a liaison between the two community areas to ensure some fidelity. The PM and CAB will hire these coordinators within the first four months of the grant period. Applicants will be recruited by CAB suggestions and advertisements frequented by the target population in order to increase the

likelihood of applicants that are members of the target group community. Coordinator positions will not require a degree but will require at least two years of life or work experience with HIV.

The coordinators will oversee the Mpowerment project, collect surveys, and train individuals on how to use the App. To adequately provide these services, the coordinators will be trained between months four and six of the project. University of California San-Francisco offers Mpowerment training for free, which will be attended by all coordinators and the PM. In addition to the Mpowerment protocol, training will include survey protocol and App protocol. The coordinators will be expected to run the entirety of the proposed program while being managed by the PM. The PM will manage fidelity and adherence to the program by the coordinators by meeting with them at least weekly and randomly attending Mpowerment events. Mpowerment coordinators will attend CAB meetings to disseminate information and get feedback immediately. The coordinators will also be in contact with stakeholders throughout the grant period to provide results and obtain individual feedback.

The Mpowerment program is dependent on volunteers. The core group will be picked by the coordinators with suggestions from the CAB. The core group of volunteers will run events for the Mpowerment program and have a supporting and interactive role in the App as well. Core members and other volunteers will sign individuals up for the App as well as act as points of contact in the chat portion of the App, as discussed later in this section.

The program takes place in a location set aside for Mpowerment events. Formal events include peer groups, known as M-Groups, which discuss issues relating to preventing HIV- such as condoms negotiation and HIV stigma. As an adaption to increase relevance to HIV-infected individuals, topics over living with HIV and adherence will be added to the list of already set modules. Other events include community get-togethers that are not focused in prevention but

rather strengthening the community. Attendance to these events will be collected by utilizing a check-in sheet. Because the Mpowerment program utilizes a “home base”, non-HIV related peer groups could be hosted by individuals who wish to do so. These peer groups could be related to issues of substance abuse, homelessness, or any issues the community may be facing. The multi-use of the space may encourage individuals that are fearful of being known as a MSM to engage in activities. The home base will be chosen by the CAB in the center of North and South Side. The home base will be chosen based on location of metro and bus stops, rental cost, and space requirements- two offices, a conference room, and a kitchen. To increase attendance, all sessions held in the “home base” will have food. Food will either be catered or cooked by volunteers in the kitchenette, which will be located in the home base.

Mobile Application

Although Mpowerment have an evidence base, it is not considered HIP, which is the current gold standard for HIV programming. As such, an adaption to the Mpowerment intervention will be to include an addition of a mobile application to increase rates of adherence. Mobile Applications have become a novel approach to addressing issues along the HIV care continuum. Previous research has found that individuals would prefer applications that increase autonomy (calendar of appointments and alerts for medication reminders, access to other PLWH to act as a social actor, and reward systems to increase usage), increase competence (social actor guidance by other PLWH), and increase psychological relatedness (social networking, GPS, and links to resources).⁹ One review found good evidence that electronic reminders improved adherence to ART medications.¹⁴ Other research has found promising results in reducing HIV risk via Live-Chat on Facebook, which may be adapted into a mobile App.¹⁵ Further, mobile apps may engage younger MSM in HIV prevention with previous studies among YMSM in

California finding that 70% of participants were willing to participate in a App-based prevention program.¹⁶ This evidence suggests that a mobile App may enhance the effects of the Mpowerment application.

Within the first six months of the grant period, the App will be created and launched by a third party vendor. The style and design of the App will be guided by comments and suggestions made during the focus groups and key informant interviews. The App will work with both iPhone and androids and provide multiple tools to utilize TAsP. The App will be free for users and be paid for by the grant during the grant period.

The App will require a login where participants can create a unique username. The login will also require users to input demographic information including age, race, sexual orientation, and gender identity. Users will be able to create an avatar and profile to represent them on the App. The app will prompt the user to report if they are taking any HIV related medication and if they would like to set up a reminder. The App will then prompt the user to report if they have ever been tested for HIV and if they would like a reminder that is annual, bi-annual, or every three months. Finally, the App will ask if the user consents to information from their App use being used in a study. Individuals that decline consent will be allowed to change consent in the settings, but will not be included in study analysis. After this, the App will be available in full. Users may utilize a chat function with other individuals on the App which include the Mpowerment core members and volunteers. Users will also have access to a calendar that includes M-group events and other relevant events that users add. Users will also be able to use a map function and find the closest location for a service or resource. These services will be based on information gained from the focus groups and will include sites like substance abuse centers and condom distribution sites.

For individuals that utilize the App for adherence, the App will also function as a positive conditioning tool. When a daily alarm goes off for a pill, a message will pop up that includes a cue to action. This alarm method has been linked with an increase in adherence for ART.¹⁷ If individuals open their App to mark that they took the pill, they will be rewarded with a badge and positive, reinforcing messaging. Certain milestones, like a month of perfect adherence, will receive a trophy that will be present on their profile (with an opt-out option).

All testing centers and service providers will be contacted and offered training on installing the app with their clients. Physicians of HIV infected BMSM will be encouraged to suggest and assist in appointment and pill alerts via the App. Mpowerment staff and volunteers will participate in normal chat, updated calendar events, and encouraging the community to use the App. The Mpowerment staff and core group will be marked as mobile administrators (admins) and be alerted when an individual has joined and when that user has been contacted by an admin. Admins will focus most of their time welcoming new users and helping them navigate the App or spreading awareness of events. Admins will also have the ability to delete inappropriate posts.

Challenges to implementation and Sustainability

Implementation of Mpowerment and the App faces a few challenges. One challenge will be ensuring that current services are willing to provide information about our program. It is extremely important to get the entire community involved with the program. To aid this, quick dissemination of results will be given to each organization by the Mpowerment coordinator. This is possible because multiple time points will be used to gather evaluation outcomes. As surveys are collected, outcomes from each set of surveys and from the entire timeline of surveys will be able to be relayed to stakeholders every six months to increase buy-in and uptake. All challenges

that occur before and during the program implementation will be continually addressed by the PM, Mpowerment coordinators and CAB in order to provide the most effective multi-level program possible.

Sustainability is important to ensure when an intervention is shown to be effective. The Mpowerment sites require funding for the rental and the salaries of the coordinators. A budget for annual continuation of the program will be created and submitted to the health department, city, and state for funding in addition to applying for continuation grants. This budget will be supported by a cost-effective analysis. Cost of the program will be carefully monitored by the PM by requiring the coordinators to submit receipts of all Mpowerment related costs weekly. Savings to the city and healthcare due to the program will be calculated by determining how many new HIV infections were prevented from the increase in adherence, testing, and protective behaviors and calculating the cost of care for those infections.

To ensure the App is continued beyond the grant period, advertisements will be sold by the Mpowerment Coordinators. Advertisements during the grant will be free to all resources and service that are non-profit and involved with the CAB. After the grant, advertisements will be available to purchase by relevant organizations. All profit from these advertisements beyond App maintenance will be used to supplement the Mpowerment program.

Performance Measures & Evaluation

The study design that I plan to use is a Quasi-experimental design with a non-equivalent control group and two treatment groups. North Side, Chicago will receive the Mpowerment program to ensure the effectiveness of the original program. South Side, Chicago will receive the Mpowerment program and also have the App advertised. West Side, Chicago will receive no intervention and act as a control for both Mpowerment alone and Mpowerment with the App

adaption. This design was chosen for multiple reasons. First, the changes that occur due to the addition of the App can be assessed because the changes due to Mpowerment should be similar between North and South side. By collecting data at baseline and every six months, information regarding the speed of diffusion regarding the Mpowerment program will be available. A second reason is to see if diffusion occurs and leaks into surrounding communities not intentionally reached.

One limit of this design is that it is Quasi-Experimental and does not utilize randomization. This may cause a bias in evaluation of outcomes if certain pockets of BMSM are reached over the entire community of BMSM. Because this is a community-level program, it is important to ensure that surveys are offered at multiple locations so a certain subgroup of the target population is not used exclusively. Use of the App in both the Mpowerment and Community setting will increase ease of data collection. Individuals who utilize the app will be consented upon download and asked to create a profile that includes demographic information. As the application is not exclusive to BMSM, some evaluation can be done on uptake of App by other demographics.

As diffusion is likely to occur within the community, another limitation is the diffusion reaching the comparison community, West Side, and increasing the likelihood of a type one error. To address this, communities within Chicago that are further from the city and the treatment communities will be chosen to become a new comparison community, and West Side will continue to be evaluated to determine strength of diffusion. Contamination will be determined by rates of awareness and attendance to events in West Side.

The Mpowerment coordinators, the CAB, and individuals going through the program will evaluate the program throughout implementation. An Mpowerment coordinator will attend the

first Mpowerment meeting and at least every fifth meeting per community area after to ensure fidelity is obtained and no major issues occur. As issues occur, the CAB will be notified and correct any issues at meetings. The Mpowerment coordinator will hold the right to enforce immediate change as needed, but must disseminate changes to the PM. The PM will be in charge of officially changing protocol after consensus vote from the CAB. Individuals that attend Mpowerment meetings will have the opportunity to make comments through anonymous cards or by emailing the PM. Individuals who utilize the App will be prompted to leave comments the first month of profile creation and every three months after.

Outcomes will be evaluated within the community and within the Mpowerment program to assess its effectiveness as a community level intervention. An increase in positivity will be measured using surveillance data from the Surveillance Report for Chicago and survey. Long-term goals of HIV reduction will also be assessed using the surveillance report, but are likely to follow a spike in positives due to target testing. Adherence to both ART and PreP will also be measured using a survey and the app, which will prompt individuals to both turn off an alarm and check off that a pill was taken.

Outcome will include a short survey regarding HIV protective behaviors. Questions will address adherence, safer sex practices including condom usage, testing practices, and awareness of program. Adherence questions will ask information on average number of pills missed per week and number of pills missed the previous week. Previous research has shown that self-reported instruments of adherence are valid and reliable.¹⁸ Questions regarding safer sex will ask information such as what types of sexual behavior engaged in the previous 3 months, if condoms or other harm reduction techniques are used with these behaviors, and if condoms were used in the last sexual act. Testing practices will ask about previous testing and intention to test. Finally,

awareness of the program will ask if the participant is aware of the App or the Mpowerment program.

Surveys to assess the community will be completed on iPads by individuals recruited by the Mpowerment Coordinators at venues frequented by the target population and via App. Locations will be used for surveying at pre-selected times to ensure that a wide variety of target group members are assessed. Individuals that attend Mpowerment meetings and events will also be assessed, but will not be given questions regarding awareness. These evaluations will occur at meetings and events. The frequency of attendance and type of events attended will be input by Mpowerment Coordinators at a later time using check-in information from meetings to allow for a dose-response analysis.

One concern in obtaining these performance outcomes is bias due to convenience sampling. Because locations for evaluation will occur in areas suggested by target group members reached throughout the program, it is possible that pockets of MSM groups that are exposed more than all MSM in the community are over reached. To promote variability between subjects, a maximum of three locations per community will be utilized for each time point of measurement. These locations will be surveyed in the morning, midday, and evening to ensure a variety of responses. At least ten locations per community area will be utilized at each time point of measurement. Locations will be selected from a list of gay-friendly venues identified during focus groups and throughout the Mpowerment program.

Survey questions will be created in Redcap by the Data Manager and collected by the Mpowerment Coordinators through convenience sampling. All input survey data will be managed by the DM. A codebook will be kept on a drop box account and available to the DM and PM. An excel file containing any discrepancies will be kept with extensive logging and

emailed to the PM at least monthly to discuss any issues that should be addressed. The DM will collect demographic information and App usage from the third-party App vendor for management and analysis. Throughout the program, the DM will manage data by correcting any and all issues with survey questions after voting on corrections and issues during CAB meetings.

Capacity and Experience of the Applicant Organization

The Chicago Department of Public Health (CDPH) is an Equal Opportunity Employer that has a long history of providing programs and interventions for HIV prevention including the distribution of ten million condoms annually, free STI/HIV testing and treatment at five locations, housing assistance for those living with HIV/AIDS, and online trainings in HIV education to name a few. The CDPH has recently been awarded a three million dollar grant for prevention and reengagement in the Chicago community, which is utilized by community organizations that partner with the CDPH. This highlights the vision and mission of the CDPH, which is to both prevent further transmission and acquisition while also assisting those currently HIV-infected.

The CDPH has many ties with community organizations. A Community Outreach Project Award is given annually to partner organizations such as the Chicago Black Gay Men's Caucus and Black Alphabet, which cater to Black MSM or Black LGBTQ members. These organizations have close ties with the CDPH, and can act as liaisons between community members and the CDPH in creating a stake in the CAB. The CDPH also is deeply involved with the Chicago Area HIV Integrated Services Council (CAHISC), which is composed of provider and consumers of HIV services, which can also be used to create a CAB. The stake for these individuals is inherent as they are already devoted to the prevention of HIV transmission and acquisition. The CDPH is very active in the community in many health fields, but especially HIV

prevention. We will work with current organizations to determine and recruit popular opinion leaders (POLs) and community champions to ensure the program's success.

The CDPH is the largest Department of Public Health to be accredited in the nation, and has many resources within, including access to grant writing, mental health clinical services, STI clinical services, and Community Engagement departments. The organizational chart can be viewed in Figure 6.

As an accredited department of Public Health, the CDPH conducts regular community needs assessment with the last one occurring in 2012 in collaboration with the University of Chicago Medical Center. In addition to utilizing this Needs Assessment, focus groups and key-enforcement interviews with target group members and local venues will determine the acceptability of the Mpowerment and application intervention.

The mission of the CDPH is “to promote and improve health by engaging residents, communities, and partners in establishing and implementing policies and services that prioritize resides and communities with the greater need”. This mission encompasses the goals of the Mpowerment program that will be run by the CDPH. As such, it will fall on current staff to hire and train the Mpowerment Coordinators and disseminate information regarding the intervention in the early stages. The program manager and data manger will provide most of the work hours required, but may utilize other employees as needed. The Program Manager will oversee all financial matters and the data manger will manage survey creation and data management. All data will be input by participants via IPads. The CDPH has current active Program Managers and Data Managers, and has managed data evaluating various interventions. This program will utilize an already hired DM and PM to implement the program and run analysis.

Training will be provided for the newly hired Coordinators via the original Mpowerment creators. Training on the application will occur within the entire HIV/STI department and disseminated to partners and collaborators via CAHISC or via in-person trainings for organizations that cannot attend council meetings.

Partnerships & Collaboration

Because this is an intervention within the community, it is important to have community buy-in from target individuals as well as relevant organizations. All collaborators and the need for collaboration can be found in Figure 3 below. All HIV-service related organizations in Chicago, regardless of community area will be contacted and asked to sign a letter of support. These services will be used as reference for issues beyond the capabilities of the proposed intervention. Many of these organizations are already involved with the Health Department or CAHISC, thus contact and conveying importance of collaboration should occur easily. Contact with collaborators will ensure that individuals in the program that need relevant services have access to organizations that provide the service. Collaborators will also be given the opportunity to receive advertising space in the application during the grant period and will be expected to promote the application among at risk individuals that utilize their services.

Figure 3. Collaborators

Organization	Purpose of Collaboration
Housing Authority	Individuals at risk of HIV infection are vulnerable to housing insecurity.
HIV-infected Housing Services	Individuals infected with HIV often are discriminated against in housing situation and/or cannot afford housing.
HIV Testing Locations	Testing locations will be taught how to sign testers up on the application, and may need to act as referrals to Mpowerment members.
STI Testing Locations	In addition to HIV testing, referrals for other STI testing is necessary.
Rehabilitation	Individuals at risk of HIV infection may also be suffering from

Services	addiction.
Food Pantries	Individuals at risk of HIV infection are vulnerable to food insecurity.
LGBTQ* Friendly Clinics	Individuals will not seek adequate care unless they feel comfortable with their doctor. Outreach to inform on PreP will also focus on LGBTQ* friendly clinics
Legal Services	Individuals that acquire HIV suffer discrimination.

This intervention will utilize two partners: Local Universities and local gay-friendly bars/venues. Local Universities (Northwestern University and the University of Chicago) will be contacted to advertise the need of a practicum student to work in the formative research portion of the intervention. Local gay-friendly bars/venues will be asked to host monthly social events in collaboration with Mpowerment throughout the program process. These bars/venues will also be utilized for Mpowerment social campaigning, recruitment, and evaluation.

Project Management

The personnel chart for the Mpowerment and App intervention can be seen in Figure 5 in the appendix. The Program Manager will oversee the entire project and work with CDPH employees, third party vendors, and practicum students.

Mpowerment Coordinators

Paid staff will be recruited from the entire community area during the first three months of the grant and trained the following three months. Recruitment will occur by posting the position in areas frequented by the target group, as determined by the CAB. The paid staff will recruit the core members from each community area during the three months of subsequent training and will have at least one individual from each area in the first month on board and trained and all individuals by the end of the first six months of the grant. Three positions will be created. One Coordinator will act as a liaison between the South Side and North Side Mpowerment locations.

The three coordinator staff positions that manage the Mpowerment Program will be in charge of all aspects of the Mpowerment program as well as the implementation of the App within the community. The coordinators will meet at least weekly with the PM and attend all CAB meetings to discuss the program implementation and trouble shoot issues. The coordinators and PM will be trained at a free Mpowerment training provided by the University of California San Francisco that will occur in the main Mpowerment meeting space in Chicago. Members of the CAB and core members of the Mpowerment program will also be invited to the three-day training if they so wish. The coordinators will follow a calendar based on the gaant chart to effectively implement the program. Progress will be monitored by the PM. Because the program is being implemented in two community areas, it is important for the coordinators the keep the information from each location distinct. To aide in this, all data from each community will be located in a separate file, and all information given to coordinators will have a heading that labels the document to a specific area. During the program, meetings by core Mpowerment members will be overseen by at least one coordinator to ensure the activities continue as needed. The coordinators will also be in charge of the volunteer core group to ensure that all the needs are being met. This will include monthly discussions with each core member by at least one coordinator. The coordinators will also be in charge of informal recruitment at local areas and events as well as condom and lube distribution at areas not reached by other organizations. The coordinators will also be in charge of convenience sampling around the community to evaluate the overall program using iPads. Towards the end of the grant period, the coordinator staff will have the oppportunity to present at local and national public health conferences.

The two Mpowerment Coordinators will undergo training to assist in creating profiles for the App community members. They will respond to alerts when a new user sets up an account,

misses three doses of medication, marks themselves as reactive, or seeks out individuals using the chat feature. The Coordinators will also assign volunteer hours for App responses to ensure 24/7 coverage.

To ensure professional development is maintained after initial training, the coordinators will offer bi-annual refreshers on the Mpowerment program to the core members using the free modules and implantation guide provided. If individuals seek information beyond that offered by the manual, the coordinators will report back to the PM and CAB to seek opportunities to enhance development through other training.

Mpowerment Core Volunteers

Core members will be recruited via tabling, flyers, and word-of-mouth. In particular, identified popular opinion leaders will be invited into the core group. The volunteer core group will be in charge of informal recruit via word of mouth as well as running Mpowerment events at least monthly per community area. The two members from each community area will be in charge of their area, but all individuals will be encouraged to attend multiple events across the entirety of the West Side of Chicago. All members will meet at least bi-weekly with the coordinator staff to discuss any issues with the program and to ensure all events are added to the calendar. The core group members will be expected to spend anywhere from two to five hours a week on Mpowerment activities. The core group will have direct contact with participants and have the largest impact on the expected performance outcomes. The core members will be trained on creating and hosting events that include monthly peer groups that last two to three hours, social dinners, and attending various events around the community. The core group will also be trained in setting up the App with interested individuals as well as responding to alerts

when a new user sets up an account, misses three doses of medication, marks themselves as reactive, or seeks out individuals using the chat feature.

Program Manager

The PM will be in charge of initial contact and creation of the CAB, which in turn will hire the Mpowerment Staff. The PM will also be in charge of ensuring all the needs the Mpowerment staff is met. By fostering a supportive environment, the likelihood of staff turnover will diminish. The PM will also be in charge of the budget and providing funds as needed. The PM will conduct the final analysis of data and write any research articles. The PM will be in charge of determining which conferences data will be presented at and who will present findings.

Data Manager

The DM will be in charge of creating all documents relevant to data collection as well ensuring the data is input into excel and monitored. The DM will also troubleshoot any issues relevant to survey questions or App questions. The DM will also conduct minor descriptive analysis on the data throughout the grant process.

BUDGET JUSTIFICATION

Project Title: An Evaluation of the Mpowerment Evidence-Based Program in Congruence with Chicago-Specific Mobile App on reducing HIV Transmission and Acquisition

Time period: 9/01/2017 – 8/31/2020

Total Requested: \$749,683

A. Salaries and Wages

Year One Personnel Budget					
Position	% FTE	Salary	Salary Requested	Fringe Requested	Total Requested
Program Manager Katelyn Mason	25%	\$60,000	\$15,000	\$3,188	\$18,188
DM	15%	\$40,000	\$6,000	\$531	\$6,531
Mpowerment Coordinator	70%	\$32,000	\$22,400	\$10,515	\$32,915

Mpowerment Coordinator	70%	\$32,000	\$22,400	\$10,515	\$32,915
Mpowerment Coordinator	70%	\$32,000	\$22,400	\$10,515	\$32,915
Year One Total Personnel			\$88,200	\$35,264	\$123,464
Year Two Personnel Budget					
Position	% FTE	Salary	Salary Requested	Fringe Requested	Total Requested
Program Manager Katelyn Mason	15%	\$60,000	\$9,000	\$1,913	\$10,913
DM	10%	\$40,000	\$4,000	\$354	\$4,354
Mpowerment Coordinator	100%	\$33,000	\$33,000	\$12,800	\$45,800
Mpowerment Coordinator	100%	\$33,000	\$33,000	\$12,800	\$45,800
Mpowerment Coordinator	100%	\$33,000	\$33,000	\$12,800	\$45,800
Year Two Total Personnel			\$112,000	\$40,665	\$152,665
Year Three Personnel Budget					
Position	% FTE	Salary	Salary Requested	Fringe Requested	Total Requested
Program Manager Katelyn Mason	15%	\$60,000	\$9,000	\$1,913	\$10,913
DM	15%	\$40,000	\$6,000	\$531	\$6,531
Mpowerment Coordinator	100%	\$34,000	\$34,000	\$13,015	\$47,015
Mpowerment Coordinator	100%	\$34,000	\$34,000	\$13,015	\$47,015
Mpowerment Coordinator	100%	\$34,000	\$34,000	\$13,015	\$47,015
Year Three Total Personnel			\$117,000	\$41,489	\$158,489
Grant Total Personnel			\$317,200	\$117,418	\$434,618

Katelyn Mason, BS, Program Manager. Ms. Mason will spend 25% of her time in year one and 15% of her time years two and three to direct and conduct this study on the utilization of Mpowerment and App technology in reducing risk behaviors related to HIV transmission and acquisition. She is an Employee of the Chicago Health Department. Ms. Mason will be in charge of finalizing IRB applications, consent forms, and training materials. She will be in charge of the initial creation of the CAB and oversee hiring of all paid positions. She will oversee training, implementation of program, and data collection and conduct all statistical analysis in the final year. She will be in correspondence with the third party App vendor. She will manage the budget

and all receipts and logging of hours worked. She will present or delegate presenters for at least three conferences, one of which will be national.

Data Manager. The DM will devote 15% of their time in the first year, 10% in the second year, and 15% in the final year as more communities undergo the intervention and data begins analysis. The DM will be in charge of overseeing all data and survey changes over the course of the grant period. They will input all data in a timely manner and perform demographic analysis.

All Staff will receive fringe benefits through the CDPH that include Retirement, Social Security, and other fringe benefits. Only the Mpowerment staff will receive healthcare as full time employees. The fringe benefits are calculated as follows in the table below.

Mpowerment Coordinators. Three Mpowerment Coordinators will be hired to oversee all implementation of the Mpowerment Program at point of hire.

Fringe Benefits Calculations			
Benefit	Faculty	Staff	Graduate Student
Retirement	10%	10%	N/A
Social Security	7.65%	7.65%	7.65%
Other Fringe	3.6%	3.9%	1.2%
Total Percent	21.25%	21.55%	8.85%
Health/Life Insurance		\$5,688	

B. Mpowerment Program Costs

Mpowerment Program Requirements				
Requirement	Year One Cost	Year Two Cost	Year Three Cost	Total Cost
Rent	\$17,325	\$34,650	\$34,650	\$86,625
Space Furnishings	\$8,000	\$0	\$0	\$8,000
M-Groups Food	\$6,000	\$7,500	\$10,000	\$20,500
Publicity Materials	\$6,000	\$6,000	\$6,000	\$18,000
Survey Materials	\$1,960	\$360	\$360	\$2,680
Survey Incentives	\$1,500	\$1,500	\$2,250	\$5,250
Bus Pass	\$2,400	\$2,400	\$2,400	\$7,200
Condoms/Lube	\$500	\$500	\$500	\$1500
Total Costs	\$45,995	\$52,910	\$66,160	\$165,065

Rent. The Mpowerment program utilizes a home base in which to host activities. This location should include two office spaces, a conference room, and a kitchen to prepare food for M-groups. The Mpowerment coordinators will use the two offices. This cost includes utilities.

Space Furnishings. Furnishings will be available for the Coordinators and Core members to use for the Mpowerment program. Furnishings include a printer, furniture, and kitchen ware. Two large suitcases and two small tables will also be ordered for bringing and displaying publicity materials to events. The coordinators will utilize the two iPad Pros bought for Survey Collection to input all data and correspond with the CAB and PM.

M-Groups Food. In order to reduce attrition, food will be offered at all M-group peer meetings. Cost of food will not exceed more than \$10 per person at any time. Drinks and Snacks will be bought in kept at the main Mpowerment Location.

Publicity Materials. Posters, cups, pens, and other types of personal advertisements will be ordered using designs made by the Public Relations position utilizing the focus groups.

Survey Materials. To collect all demographic and survey data, two iPads and cellular data plans will be bought. These tablets will be linked to data collection software and participants can either input information about themselves or the Coordinators can collect it verbally and input it on the iPad.

Survey Incentives. Individuals that take part in the survey will be entered into a raffle for a \$50 gift card. Five gift cards will be available per community every testing period.

Buss Pass. Coordinators will be offered an unlimited 30-day bus/rail pass for each month they work to cover costs of traveling to and from communities for outreach and Mpowerment events.

Condoms and Lube. Coordinators will provide condoms at all events and to all testers and Mpowerment individuals. Coordinators will also provide condom distribution as needed in the community.

C. App Costs

App Requirements				
Requirement	Year One Cost	Year Two Cost	Year Three Cost	Total Cost
Development	\$100,000	\$0	\$0	\$100,000
Maintenance	\$10,000	\$20,000	\$20,000	\$50,00
Total Costs	\$110,000	\$20,000	\$20,000	\$150,000

App Development. Because the App will utilize mapping software, avatars, profiles, and chat functions, a mobile app developer company must be hired to create the program based on the required functions and the input on social branding.

App Maintenance. Updates and debugging must be continuously addressed throughout the grant period.

D. Focus Groups

Focus Groups Requirements				
Requirement	Year One Cost	Year Two Cost	Year Three Cost	Total Cost
Focus Groups Food	\$630	\$0	\$0	\$630
Focus Groups Incentives	\$1,680	\$0	\$0	\$1,680
Total Costs	\$2,310	\$0	\$0	\$2,310

Focus Groups Food. To increase uptake, food will be offered at each focus group meeting. Food will not exceed more than \$10 per person.

Focus Groups Incentives. Focus groups will occur in each of the three community areas at least twice and will include four to six individuals. Participants will be compensated \$40 for their time.

E. Other Costs

Other Requirements

Requirement	Year One Cost	Year Two Cost	Year Three Cost	Total Cost
Conference	\$0	\$0	\$10,000	\$10,000
Total Costs	\$0	\$0	\$10,000	\$10,000

Conference. At least three conferences will be attended with findings disseminated. At least one conference will be nation. APHA 2020 will occur in Washing DC, so funding is toward the cost of travel, hotel, and food to Washington, DC for three nights.

Appendix E

Figure 4. Gaant Chart Timeline of Activities

Year One													
Activity	1	2	3	4	5	6	7	8	9	10	11	12	
Creation of CAB	█												
Contact of Partners	█								█			█	
Contact of Collaborators	█												
CAB meetings		█							█			█	
Focus Groups and Interviews	█												
App Development		█											
Hiring Process	█												
Mpowerment Training		█											
App Training							█						
Data Management	█												
Data Analysis				█									█
Mpowerment Program							█						
Year Two													
Activity	1	2	3	4	5	6	7	8	9	10	11	12	
Contact of Partners			█			█			█			█	
CAB meetings			█			█			█			█	
App Training	█												
Data Management	█												
Data Analysis						█						█	
Mpowerment Program	█												
Year Three													
Activity	1	2	3	4	5	6	7	8	9	10	11	12	
Contact of Partners			█			█			█			█	
CAB meetings			█			█			█			█	
App Training	█												
Data Management	█												
Data Analysis						█						█	
Mpowerment Program	█												

Figure 5. Personnel Chart for Mpowerment: Chicago

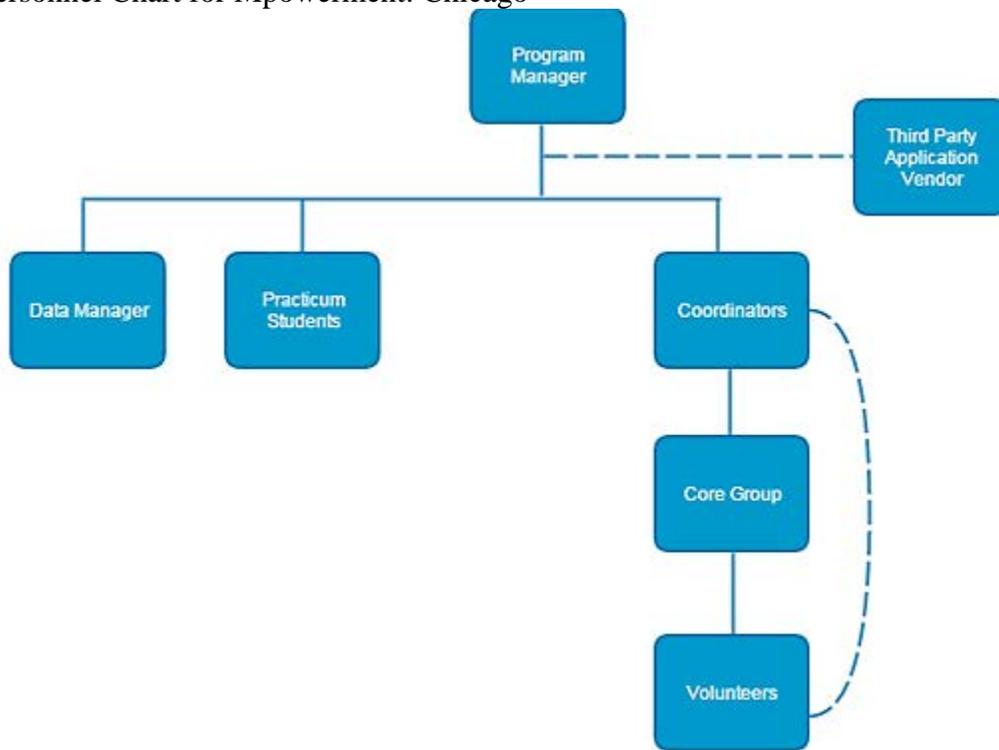


Figure 6. Chicago Department of Public Health

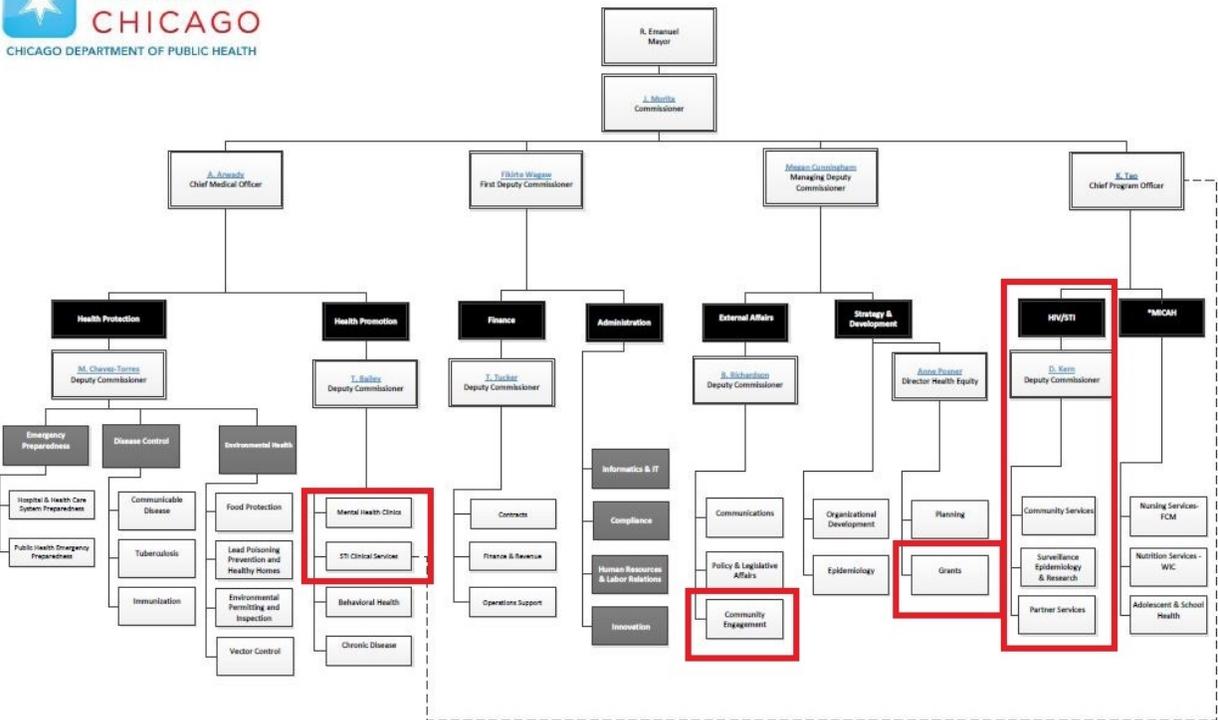
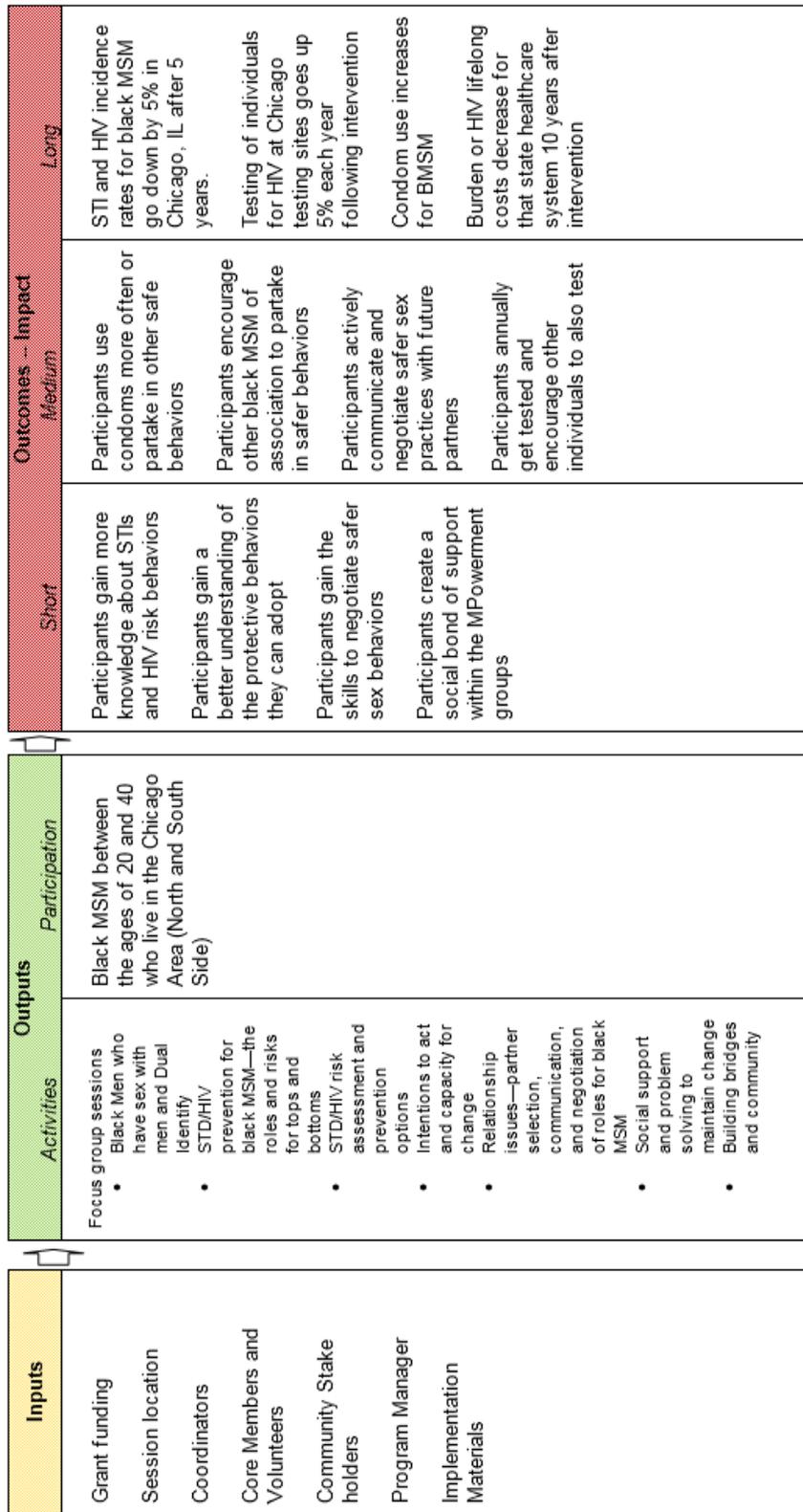


Figure 7. Logic Model.



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